Trend Study 16A-10-02

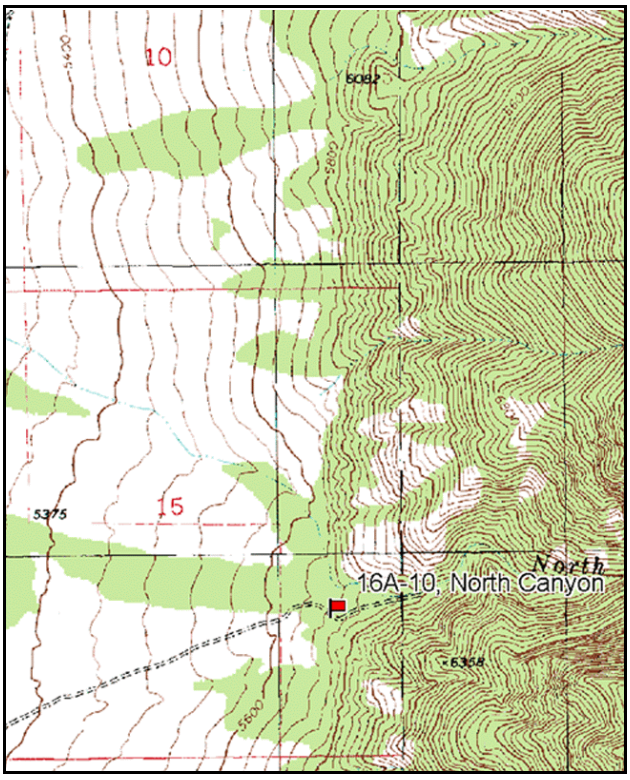
Study site name: North Canyon . Vegetation type: Big Sagebrush-Grass .

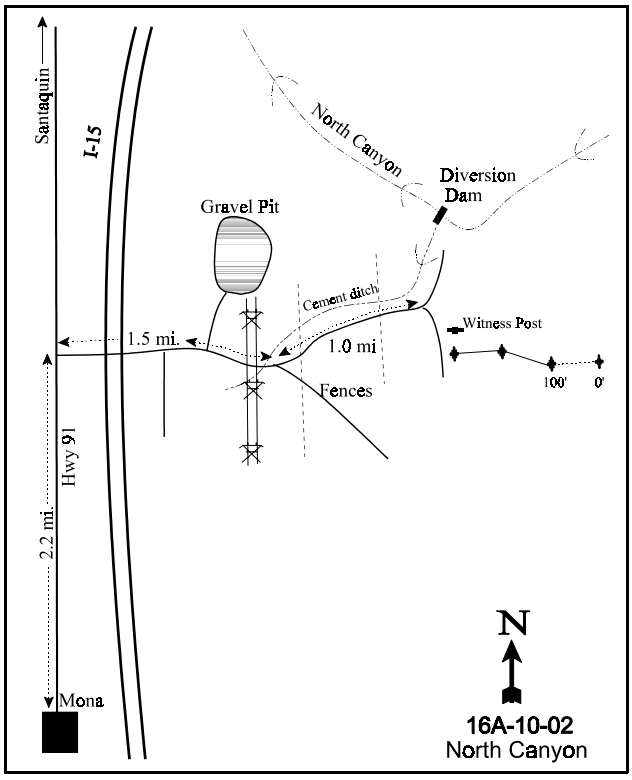
Compass bearing: frequency baseline 267 degrees magnetic (line 2 @ 277°M).

Frequency belt placement: line 1 (11 & 71ft), line 2 (41ft), line 3 (34 ft centered on 40, & 95ft). Rebar: belt 4 on 2 ft, belt 2 on 1 ft.

LOCATION DESCRIPTION

Beginning at the intersection of 200 North and Main Street in Mona, go north on Main Street for 2.2 miles to an improved gravel road on the east side. Take this road east for 1.5 miles (passing beneath the freeway) to where the road forks after crossing the irrigation ditch. Stay left at this fork and continue another mile to where the road faintly forks again. From here, walk down the right fork for 22 paces. At this point, the witness post is on the left, next to the 300-foot stake. A red browse tag, number 3957, is attached to the 0-foot baseline stake.





Map Name: Mona

Diagrammatic Sketch

Township 11S , Range 1E , Section 15

GPS: NAD 27, UTM 12S 4411768 N 431183 E

DISCUSSION

North Canyon - Trend Study No. 16A-10

This trend study is located on Division land near the mouth of North Canyon on an alluvial fan dissected by gullies. The site has a moderate slope (15%), west aspect, and an elevation of about 5,700 feet. The site supports a big sagebrush-grass community interrupted by an occasional Gambel oak and skunkbush sumac clones. Water can be found in the nearby creek. The principal wildlife value for the area is deer winter range. Elk use appears negligible. Few deer pellet groups were found on the site in 1997. A pellet group transect read along the study site baseline in 2002 estimated 21 deer days use/acre (53 ddu/ha). No elk pellet groups were encountered.

Soil is alluvially deposited from sedimentary limestone and quartzite parent material. The soil is moderately deep, but very rocky and well drained. Effective rooting depth is estimated at just over 10 inches. Soil texture is a sandy loam with a neutral pH of 7.1. Phosphorus and potassium may be limiting to vegetation development with only 8.2 ppm (minimum 10 ppm) and 51.2 ppm (minimum 70 ppm) found in the soil respectively. Much of the ground surface is occupied by rocks, some of which are boulder size or even larger. Cobble size rocks and pavement are concentrated on the surface in many areas. The distribution of vegetation and litter cover is uneven. Where adequate cover is found, it is effective at preventing runoff. However, the large areas occupied by rock and erosion pavement result in considerable overland water flow with relatively little soil movement. Deposition of soil from higher slopes is probably more common than is soil loss. The area to the immediate north and west, which is the active flood plain or out wash area from North Creek, appears to be heavily impacted by spring runoff. There is little unprotected bare ground on the study site itself (1%), and the soil erosion condition classification was determined to be stable in 2002.

The key browse species is mountain big sagebrush which accounted for 80% of the browse cover in 1997 and 74% in 2002. Population density has shown a steady decline since 1983 when a very high 6,333 plants/acre were estimated. Density was estimated at 3,880 plants/acre in 1997. Use was light to moderate, vigor good, and only 11% of the population was considered decadent. In 2002, density of sagebrush declined 11% to 3,460 plants/acre. Use was mostly light but due to drought conditions, the proportion of plants displaying poor vigor increased from 5% in 1997 to 21% in 2002. The number of decadent plants also increased from 11% to 42% of the population. In addition, 47% of the decadent sagebrush sampled in 2002 were classified as dying (>50% of crown dead). Recruitment is poor. No seedlings have been sampled on the site since 1983 with the exception of 2 seedlings found in 1997. The number of young plants have declined with every reading. The number of dead plants doubled between 1997 and 2002.

The only other common browse species is broom snakeweed which had a density of 2,020 plants/acre in 1997 declining to 1,700 by 2002. A few scattered curlleaf mountain mahogany, white rubber rabbitbrush, and Gambel oak occur scattered over the site.

The herbaceous understory is diverse but not very productive. Species composition includes native and exotic species, with the latter presumably the result from a nearby range seeding. Annual cheatgrass is the most abundant species, accounting for 57% of the total grass cover in 1997 declining to 29% in 2002. The only common perennial species consists of Sandberg bluegrass. Forbs are much less abundant than grasses and include several annuals and biennials with a few perennials. Forb composition is dominated by redroot eriogonum which accounted for 55% of the forb cover in 1997. Most other perennial species occur rarely.

1983 APPARENT TREND ASSESSMENT

Soil trend seems stable even though some disturbance is noticeable. The combination of rock, erosion pavement, vegetation, litter cover, and gentle slope limit the degree of soil erosion. Soil deposition rates probably exceed soil loss. Vegetative trend amongst the browse population also appears stable but could change quickly if disturbed. Herbaceous composition, especially forbs, is somewhat depleted but not showing any obvious further deterioration.

1989 TREND ASSESSMENT

Frequency data comparisons on this site reveal a stable condition. Classifications on the density portion of the study indicate some changes in the population of the key species, mountain big sagebrush. Sagebrush density declined in the young and mature age classes. The study found a higher percentage of shrubs with a heavily hedged growth form in 1989 (40% compared to 24%). Still, the density of mature sagebrush remains satisfactory at close to 3,000 plants per acre and an average cover of 24%. Increases in grass frequency and density were recorded, and the herbaceous component, although depleted, is stable and also possibly slightly improving. There is an extensive rock and pavement cover, but the soil condition appears stable.

TREND ASSESSMENT
soil - stable (3)
browse - stable (3)
herbaceous understory - up slightly, but depleted (4)

1997 TREND ASSESSMENT

Soil trend appears stable with similar ground cover characteristics compared to 1989. Trend for mountain big sagebrush also appears relatively stable, after self-thinning. The number of mature plants has remained similar while the number of young and decadent plants has declined. Utilization remains moderate to heavy, but vigor is normal and percent decadency low at 11%. Trend for the herbaceous understory is up slightly due to an increase in the sum of nested frequency of perennial grasses and forbs. Forbs are still lacking however.

TREND ASSESSMENT
soil - stable (3)
browse - stable (3)
herbaceous understory - up slightly (4)

2002 TREND ASSESSMENT

Soil trend has improved slightly. There is excellent protective ground cover leaving very little (1%) unprotected bare ground. Herbaceous vegetation cover has increased from 14% to 23%, likely due to a slight decline in sagebrush. Trend for the key browse species, mountain big sagebrush, is down slightly. Density has declined 11%, recruitment is poor, more plants display poor vigor (5% vs 21%), and decadence has increased from 11% of the population to 42%. In addition, 47% of the decadent sagebrush sampled were classified as dying (>50% crown death). Still, there is a good amount of healthy sagebrush left on the site and the reduction in sagebrush density and cover appears to have improved the herbaceous understory. Trend for the herbaceous understory is up slightly due to an increase in the sum of nested frequency of perennial grasses. Cover of perennial grasses increased from 4% in 1997 to 14% in 2002. Part of the improvement in perennial grasses comes from a significant increase in the nested frequency of the low value perennial, bulbous bluegrass. Frequency and cover of the annual, cheatgrass, has remained stable. Frequency of perennial forbs has declined slightly but forbs never were very productive on this site.

TREND ASSESSMENT
soil - up slightly (4)
browse - down slightly (2)
herbaceous understory - up slightly (4)

HERBACEOUS TRENDS --
Herd unit 16A, Study no: 10

Type	Species	Nested Frequency				Quadrat Frequency				Average Cover %	
		'83	'89	'97	'02	'83	'89	'97	'02	'97	'02
G	Agropyron cristatum	8	22	7	6	4	8	3	3	.04	.57
G	Agropyron intermedium	40	48	24	25	16	18	9	12	.61	2.76
G	Aristida purpurea	8	7	18	20	3	4	8	9	.80	.76
G	Bromus carinatus	-	-	-	6	-	-	-	3	-	.68
G	Bromus japonicus (a)	-	-	-	3	-	-	-	1	-	.03
G	Bromus marginatus	1	-	-	-	1	-	-	-	-	-
G	Bromus tectorum (a)	-	-	274	284	-	-	87	86	5.69	5.55
G	Festuca myuros (a)	-	-	$_{b}$29	$_{a}$4	-	-	11	2	.30	.01
G	Festuca ovina	$_{a}$-	$_{a}$-	$_{ab}$6	$_{b}$18	-	-	2	7	.53	1.01
G	Poa bulbosa	$_{a}$-	$_{a}$-	$_{b}$15	$_{c}$60	-	-	5	19	.24	2.91
G	Poa pratensis	-	-	-	2	-	-	-	1	-	.03
G	Poa secunda	$_{a}$75	$_{b}$114	$_{b}$166	$_{c}$165	38	46	59	62	1.37	4.28
G	Sitanion hystrix	-	-	7	2	-	-	2	2	.01	.06
G	Sporobolus cryptandrus	$_{b}$15	$_{a}$-	$_{b}$24	$_{b}$23	6	-	9	11	.41	.46
G	Vulpia octoflora (a)	-	-	-	7	-	-	-	3	-	.04
Total for Annual Grasses		0	0	303	298	0	0	98	92	5.99	5.63
Total for Perennial Grasses		147	191	267	327	68	76	97	129	4.03	13.56
Total for Grasses		147	191	570	625	68	76	195	221	10.02	19.20
F	Alyssum alyssoides (a)	-	-	$_{a}$86	$_{b}$178	-	-	34	61	.27	.43
F	Allium spp.	-	-	8	-	-	-	3	-	.01	-
F	Antennaria rosea	-	-	-	4	-	-	-	1	-	.03
F	Astragalus eurekensis	$_{a}$-	$_{a}$-	$_{a}$-	$_{b}$14	-	-	-	5	-	.15
F	Astragalus utahensis	$_{a}$-	$_{a}$-	$_{b}$27	$_{a}$8	-	-	12	3	.33	.09
F	Castilleja linariaefolia	-	-	-	2	-	-	-	1	-	.03
F	Calochortus nuttallii	$_{a}$-	$_{a}$-	$_{b}$18	$_{b}$25	-	-	9	10	.04	.08
F	Cirsium vulgare	$_{ab}$3	$_{a}$-	$_{b}$7	$_{a}$-	1	-	4	-	.02	.00
F	Collinsia parviflora (a)	-	-	$_{a}$19	$_{b}$78	-	-	7	29	.06	.27
F	Cruciferae	-	2	-	-	-	2	-	-	-	-
F	Cryptantha spp.	-	-	4	-	-	-	2	-	.03	-
F	Cynoglossum officinale	-	2	3	-	-	1	1	-	.00	-
F	Draba spp. (a)	-	-	-	14	-	-	-	4	-	.04
F	Epilobium brachycarpum (a)	-	-	10	6	-	-	5	4	.02	.02
F	Erigeron pumilus	5	2	8	1	2	1	4	1	.09	.00
F	Eriogonum racemosum	43	52	73	47	24	24	29	28	2.09	.80
F	Galium aparine (a)	-	-	100	79	-	-	34	31	.42	.62
F	Helianthus annuus (a)	4	15	-	8	3	9	-	3	-	.01
F	Holosteum umbellatum (a)	-	-	$_{a}$29	$_{b}$82	-	-	11	29	.05	.19

Type	Species	Nested Frequency				Quadrat Frequency				Average Cover %	
		'83	'89	'97	'02	'83	'89	'97	'02	'97	'02
F	Leucelene ericoides	$_{a}$-	$_{a}$-	$_{a}$6	$_{b}$14	-	-	2	5	.03	.36
F	Lithospermum incisum	-	-	4	6	-	-	2	4	.03	.04
F	Machaeranthera canescens	6	3	8	-	2	1	3	-	.04	-
F	Medicago sativa	1	3	2	-	1	1	1	-	.03	-
F	Microsteris gracilis (a)	-	-	$_{a}$-	$_{b}$13	-	-	-	6	-	.03
F	Oenothera pallida	-	-	-	3	-	-	-	1	-	.03
F	Phlox longifolia	-	-	$_{a}$3	$_{b}$9	-	-	1	4	.00	.02
F	Ranunculus testiculatus (a)	-	-	74	93	-	-	27	36	.18	.55
F	Tragopogon dubius	-	-	-	1	-	-	-	1	-	.00
F	Unknown forb-annual (a)	-	-	2	-	-	-	2	-	.01	-
F	Unknown forb-perennial	3	-	-	-	2	-	-	-	-	-
F	Zigadenus paniculatus	-	-	4	2	-	-	2	1	.01	.03
Total for Annual Forbs		4	15	320	551	3	9	120	203	1.02	2.18
Total for Perennial Forbs		61	64	175	136	32	30	75	65	2.80	1.69
Total for Forbs		65	79	495	687	35	39	195	268	3.82	3.88

Values with different subscript letters are significantly different at alpha = 0.10

BROWSE TRENDS --
Herd unit 16A, Study no: 10

Type	Species	Strip Frequency		Average Cover %	
		'97	'02	'97	'02
B	Artemisia tridentata vaseyana	88	74	19.99	18.17
B	Cercocarpus ledifolius	1	1	.00	-
B	Chrysothamnus nauseosus albicaulis	2	6	1.39	3.15
B	Chrysothamnus viscidiflorus viscidiflorus	1	0	.38	-
B	Gutierrezia sarothrae	24	31	2.14	.36
B	Opuntia spp.	3	0	.00	-
B	Pediocactus simpsonii	0	1	-	.00
B	Quercus gambelii	7	9	1.06	2.40
B	Rhus trilobata	0	0	-	.38
Total for Browse		126	122	24.98	24.47

Key Browse Annual Leader Growth
Herd unit 16A , Study no: 10

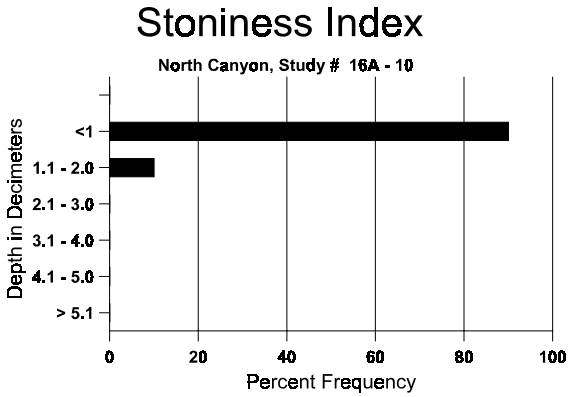
Species	Average leader growth (in)
	'02
Artemisia tridentata vaseyana	2.1

BASIC COVER --
Herd unit 16A, Study no: 10

Cover Type	Nested Frequency		Average Cover %			
	'97	'02	'83	'89	'97	'02
Vegetation	368	371	1.00	3.75	34.09	48.70
Rock	279	289	20.50	25.25	18.35	20.88
Pavement	225	234	7.00	10.00	15.76	16.25
Litter	385	369	66.75	56.75	43.20	43.88
Cryptogams	118	72	0	0	1.19	1.19
Bare Ground	134	94	4.75	4.25	4.25	.91

SOIL ANALYSIS DATA --
Herd Unit 16A, Study no: 10, North Canyon

Effective rooting depth (in)	Temp °F (depth)	pH	%sand	%silt	%clay	%0M	PPM P	PPM K	dS/m
10.3	55.5 (14.3)	7.1	56.4	28.1	15.6	3.2	8.2	51.2	.8



PELLET GROUP FREQUENCY --
Herd unit 16A, Study no: 10

Type	Quadrat Frequency		Pellet Transect	
	'97	'02	Pellet Groups per Acre ⅈ02	Days Use per Acre (ha) ⅈ02
Rabbit	-	4	-	-
Elk	-	1	-	-
Deer	6	16	278	21 (53)

BROWSE CHARACTERISTICS --
Herd unit 16A, Study no: 10

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Artemisia tridentata vaseyana																		
S	83	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	97	2	-	-	-	-	-	-	-	-	2	-	-	-	40			2
	02	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
Y	83	20	-	-	-	-	-	-	-	-	20	-	-	-	1333			20
	89	3	5	1	1	-	-	-	-	-	10	-	-	-	666			10
	97	18	1	-	-	-	-	-	-	-	19	-	-	-	380			19
	02	5	-	-	-	-	-	-	-	-	5	-	-	-	100			5
M	83	35	16	6	-	-	-	-	-	-	56	-	1	-	3800	21	24	57
	89	4	23	15	-	-	2	-	-	-	44	-	-	-	2933	19	28	44
	97	35	80	22	8	8	-	-	-	-	153	-	-	-	3060	24	40	153
	02	74	16	1	4	-	-	-	-	-	95	-	-	-	1900	23	33	95
D	83	1	-	17	-	-	-	-	-	-	-	-	18	-	1200			18
	89	-	8	11	-	-	-	-	-	-	14	-	3	2	1266			19
	97	5	6	11	-	-	-	-	-	-	12	-	-	10	440			22
	02	60	8	-	5	-	-	-	-	-	36	-	3	34	1460			73
X	83	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	97	-	-	-	-	-	-	-	-	-	-	-	-	-	880			44
	02	-	-	-	-	-	-	-	-	-	-	-	-	-	1660			83

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'83	17%	24%	20%	-23%
'89	49%	40%	07%	-20%
'97	49%	17%	05%	-11%
'02	14%	.57%	21%	

Total Plants/Acre (excluding Dead & Seedlings)				
'83	6333	Dec:	19%	
'89	4865		26%	
'97	3880		11%	
'02	3460		42%	

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Cercocarpus ledifolius																		
Y	83	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	97	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
	02	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
M	83	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	97	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	02	-	-	-	-	-	-	-	-	-	-	-	-	-	0	3	4	0
D	83	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	97	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	02	-	-	1	-	-	-	-	-	-	1	-	-	-	20			1

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'83	00%	00%	00%	
'89	00%	00%	00%	
'97	00%	00%	00%	+ 0%
'02	00%	100%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
'83	0	Dec:		0%
'89	0			0%
'97	20			0%
'02	20			100%

Chrysothamnus nauseosus albicaulis																			
M	83	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	97	1	1	-	-	-	-	-	-	-	2	-	-	-	40	32	33	2
	02	1	-	-	-	-	-	-	-	-	1	-	-	-	20	37	31	1
D	83	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	97	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	02	9	1	-	-	-	-	-	-	-	10	-	-	-	200			10
X	83	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	97	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	02	-	-	-	-	-	-	-	-	-	-	-	-	-	20			1

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'83	00%	00%	00%	
'89	00%	00%	00%	
'97	50%	00%	00%	+82%
'02	09%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)			
'83	0	Dec:	0%
'89	0		0%
'97	40		0%
'02	220		91%

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Chrysothamnus viscidiflorus viscidiflorus																		
M	83	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	97	1	-	-	-	-	-	-	-	-	1	-	-	-	20	34	38	1
	02	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'83	00%	00%	00%	
'89	00%	00%	00%	
'97	00%	00%	00%	
'02	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)			Dec:	
	'83	0		-
	'89	0		-
	'97	20		-
	'02	0		-

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Gutierrezia sarothrae																		
S	83	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	97	4	-	-	-	-	-	-	-	-	4	-	-	-	80			4
	02	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
Y	83	6	-	-	-	-	-	-	-	-	6	-	-	-	400			6
	89	11	-	-	-	-	-	-	-	-	11	-	-	-	733			11
	97	28	-	-	-	-	-	-	-	-	28	-	-	-	560			28
	02	4	-	-	-	-	-	-	-	-	4	-	-	-	80			4
M	83	10	-	-	-	-	-	-	-	-	10	-	-	-	666	9	8	10
	89	4	-	-	-	-	-	2	-	-	6	-	-	-	400	8	5	6
	97	71	-	-	-	-	-	-	-	-	71	-	-	-	1420	7	8	71
	02	69	-	-	4	-	-	-	-	-	73	-	-	-	1500	6	6	75
D	83	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	89	9	-	-	-	-	-	-	-	-	8	-	-	1	600			9
	97	2	-	-	-	-	-	-	-	-	2	-	-	-	40			2
	02	6	-	-	-	-	-	-	-	-	-	-	-	6	120			6
X	83	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	97	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	02	-	-	-	-	-	-	-	-	-	-	-	-	-	40			2

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'83	00%	00%	00%	+38%
'89	00%	00%	04%	+14%
'97	00%	00%	00%	-16%
'02	00%	00%	07%	

Total Plants/Acre (excluding Dead & Seedlings)			Dec:	
	'83	1066		0%
	'89	1733		35%
	'97	2020		2%
	'02	1700		7%

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Opuntia spp.																		
M	83	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	97	4	-	-	-	-	-	-	-	-	4	-	-	-	80	5	7	4
	02	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor
'83	00%	00%	00%
'89	00%	00%	00%
'97	00%	00%	00%
'02	00%	00%	00%

%Change

Total Plants/Acre (excluding Dead & Seedlings)				
	'83	0	Dec:	-
	'89	0		-
	'97	80		-
	'02	0		-

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Pediocactus simpsonii																		
M	83	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	97	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	02	2	-	-	-	-	-	-	-	-	2	-	-	-	40	7	7	2

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor
'83	00%	00%	00%
'89	00%	00%	00%
'97	00%	00%	00%
'02	00%	00%	00%

%Change

Total Plants/Acre (excluding Dead & Seedlings)				
	'83	0	Dec:	-
	'89	0		-
	'97	0		-
	'02	40		-

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Prunus virginiana																		
M	83	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	97	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	02	-	-	-	-	-	-	-	-	-	-	-	-	-	0	72	142	0

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor
'83	00%	00%	00%
'89	00%	00%	00%
'97	00%	00%	00%
'02	00%	00%	00%

%Change

Total Plants/Acre (excluding Dead & Seedlings)				
	'83	0	Dec:	-
	'89	0		-
	'97	0		-
	'02	0		-

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Quercus gambelii																		
S	83	1	-	-	-	-	-	-	-	-	1	-	-	-	66			1
	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	97	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	02	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
Y	83	2	-	-	-	-	-	-	-	-	2	-	-	-	133			2
	89	-	2	-	-	1	-	-	-	-	3	-	-	-	200			3
	97	2	-	-	1	-	-	-	-	-	3	-	-	-	60			3
	02	7	-	-	1	-	-	-	-	-	8	-	-	-	160			8
M	83	1	-	-	-	-	-	-	-	-	1	-	-	-	66	20	31	1
	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	97	-	4	-	-	-	-	-	-	-	4	-	-	-	80	65	48	4
	02	6	-	-	7	-	-	-	-	-	5	-	8	-	260	48	35	13

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'83	00%	00%	00%	+ 1%
'89	100%	00%	00%	-30%
'97	57%	00%	00%	+67%
'02	00%	00%	38%	

Total Plants/Acre (excluding Dead & Seedlings)				
'83	199	Dec:		-
'89	200			-
'97	140			-
'02	420			-

Rhus trilobata																		
M	83	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	97	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	02	-	-	-	-	-	-	-	-	-	-	-	-	-	0	62	113	0

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'83	00%	00%	00%	
'89	00%	00%	00%	
'97	00%	00%	00%	
'02	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
'83	0	Dec:		-
'89	0			-
'97	0			-
'02	0			-